

REMARKS/ARGUMENTS

This Amendment is responsive to the Office Action mailed on December 24, 2008. Applicant has amended claims 1, 2, 8-11, 25, 26 and 29, and added new claims 32-34. Applicant has canceled non-elected claims 13-24, 27 and 30, but reserves the right to present such claims at a later date.

Claim Rejections – 35 USC § 101

The Office Action rejected claims 25–26 and 28–29 under 35 USC § 101 as being directed to non-statutory subject matter. According to the Office Action, the scope of these claims is directed to software, when read in light of the specification. Also, according to the Office Action, the only way for software to comply with 35 USC § 101 is for the software to be stored on a computer-readable medium. Applicant disagrees with both of these assertions.

First, Applicant's specification clearly articulates that the features of 25–26 and 28–29 may be implemented in hardware, software, firmware, combinations of hardware, software and firmware, or even via application specific integrated circuits (ASICs) and/or circuit card assemblies. For example, paragraph [0036] contemplates implementations of the invention via hardware, software or firmware. Furthermore, paragraph [0043] contemplates implementations in hardware, software, firmware ASICs and/or circuit card assemblies. In each instance, the invention is ultimately implemented by a hardware device. Accordingly, Applicant has not limited the scope of the invention to software, and the comments in the Office Action that the invention is limited to software are incorrect. Reciting the invention in the context of an apparatus is necessary for Applicant to cover implementations in hardware, software, firmware ASICs and/or circuit card assemblies, as set forth in Applicant's specification.

Second, the comments in the Office Action that the only way for software to comply with 35 USC § 101 is for the software to be stored on a computer-readable medium is an incorrect statement of the law. As one example, 35 U.S.C. § 112, sixth paragraph, sets forth a specific type of claim that complies with 35 USC § 101. So-called "means plus function claims" in compliance with 35 U.S.C. § 112, sixth paragraph, are clearly statutory. In this case, under 35 U.S.C. § 112, sixth paragraph, such claims "shall be construed to cover the corresponding structure, material or acts described in the specification and equivalents thereof."

Claims 25, 26 and new claim 32 comply with 35 U.S.C. § 112, sixth paragraph, and are therefore statutory, per se, under 35 U.S.C. § 112, sixth paragraph. To the extent that the Examiner is relying on case law, patent rules, or the MPEP, the legislation under 35 U.S.C. § 112, sixth paragraph, preempts all of this authority and renders claims 25, 26 and 32 statutory in compliance with 35 U.S.C. § 112, sixth paragraph.

For at least these reasons, Applicant requests withdrawal of the Claim Rejections under 35 USC § 101.

Claim Rejections – 35 USC § 103

Claims 1–10, 12, 25–26, 28–29 and 31 stand rejected under 35 USC § 103 as being unpatentable over Watson (US 5,629,780) in view of Pian et al. (US 2002/0021754). Claim 11 stands rejected under 35 USC § 103 as being unpatentable over Watson and Pian, in further view of Lee et al. (US 5,576,767).

Although Applicant disagrees with these rejections, Applicant has amended the claims in order to clarify the invention and more clearly distinguish the applied prior art. In particular, Applicant has amended all pending independent claims to require that the final set of parameters define quantization steps (Q-steps) for quantizing coefficients, a block size threshold that limits a number of blocks associated with one or more block sizes, one or more weighting functions that define weightings to be applied during quantization, and one or more variable length coding tables to be applied during variable length coding.

Nothing in the applied prior art discloses or suggests a final set of parameters that is determined to result in a compressed data bit rate below a selected threshold so that a decoder will not stop during playback, wherein the final set of parameters define Q-steps for quantizing coefficients, a block size threshold that limits a number of blocks associated with one or more block sizes, one or more weighting functions that define weightings to be applied during quantization, and one or more variable length coding tables to be applied during variable length coding.

Claim 1, for example, now recites an apparatus comprising a source generator configured to convert image information into digital image information, and an encoder coupled to the source generator. The encoder is configured to receive the digital image information from the source generator. Furthermore, according to claim 1, the encoder comprises a parameter

generator to output a final set of parameters, wherein the final set of parameters is determined to result in a compressed data bit rate below a selected threshold so that a decoder will not stop during playback, wherein the final set of parameters define quantization steps (Q-steps) for quantizing coefficients, a block size threshold that limits a number of blocks associated with one or more block sizes, one or more weighting functions that define weightings to be applied during quantization, and one or more variable length coding tables to be applied during variable length coding. In addition, according to claim 1, the encoder includes an image compressor coupled to the parameter generator, the image compressor to compress the digital image information using the final set of parameters, wherein the encoder outputs the compressed digital information. Claim 25 and 28 recite features similar to those recited in claim 1.

Amended claim 1 requires at least four different elements in the final set of parameters. In particular, amended claim 1 requires the final set of parameters to include: 1) Q-steps for quantizing coefficients, 2) a block size threshold that limits a number of blocks associated with one or more block sizes, 3) one or more weighting functions that define weightings to be applied during quantization, and 4) one or more variable length coding tables to be applied during variable length coding.

The applied prior art fails to disclose or suggest any final set of parameters that includes these four different elements. As one example, the applied prior art fails to disclose or suggest any final set of parameters that includes a block size threshold that limits a number of blocks associated with one or more block sizes. In the analysis of former claim 11, the Office Action recognized that Watson and Pian fail to teach any ABSDCT threshold, which is one example of a block size threshold that limits a number of blocks associated with one or more block sizes. However, the Examiner cited Lee as teaching an ABSDCT threshold, and indicated that former claim 11 would have been obvious over Watson in view of Pian and Lee.

Lee, however, like Watson and Pian fails to suggest any ABSDCT threshold. While Lee teaches the use of ABSDCT techniques generally and cost functions for application of ABSDCT, Lee fails to suggest any ABSDCT threshold that is part of a final set of parameters determined to result in a compressed data bit rate below a selected threshold. The current claim amendment to claim 1, however, should make this distinction clearer insofar as claim 1 now clarifies a block size threshold that "limits a number of blocks associated with one or more block sizes." Nothing in Watson, Pian or Lee suggests this feature.

Again, amended claim 1 requires at least four different elements in the final set of parameters. In particular, amended claim 1 requires the final set of parameters to include: 1) Q-steps for quantizing coefficients, 2) a block size threshold that limits a number of blocks associated with one or more block sizes, 3) one or more weighting functions that define weightings to be applied during quantization, and 4) one or more variable length coding tables to be applied during variable length coding. Nothing in any of the applied references discloses a block size threshold that limits a number of blocks associated with one or more block sizes. Moreover, the combination of the at least four different elements in the final set of parameters, recited in claim 1, is novel and non-obvious over the applied prior art. Similar arguments apply to independent claims 25 and 28.

In the analysis of former claim 10, the Office Action indicated that Watson teaches that the first set of parameters includes Huffman code tables. Citing column 5, lines 25-29. However, this cited passage simply describes the use of Huffman code tables, and not any parameters that define Huffman code tables to be used. Nothing in Watson appears to disclose or suggest Huffman code tables being defined by a final set of parameters determined to result in a compressed data bit rate below a selected threshold. Accordingly, Watson fails to suggest any final set of parameters that includes one or more variable length coding tables (such as Huffman tables) to be applied during variable length coding. On this additional basis, the current rejections cannot stand.

Dependent claim 8 further clarifies that the image compressor comprises a transform module to convert the digital image information from spatial to frequency domain, the transform module to generate transform coefficients based on the block size threshold, a quantization module to quantize the transform coefficients using the Q-steps and the one or more weighting functions, and a variable length coding module to compress the quantized transform coefficients based on the one or more variable length coding tables. Nothing in the applied prior art discloses or suggests these features.

Dependent claim 9 further clarifies that the one or more weighting functions comprise frequency weight mask (FWM) tables. Dependent claim 10 further clarifies that the one or more variable length coding tables comprise Huffman code tables and the variable length coding module includes a Huffman engine to compress the quantized transform coefficients using the Huffman code tables. Dependent claim 11 further clarifies that the block size threshold

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comprises an adaptive block size discrete transform (ABSDCT) threshold and the transform module comprises an ABSDCT module to convert the digital image information from spatial to frequency domain using ABSDCT according to the ABSDCT threshold. Thus, the features recited in claims 9-11 are examples of the different parameters recited in Applicant's claim 1.

New claims 32 and 33 are dependent upon claims 25 and 28 respectively. New claims 32 and 33 recite features similar to those of dependent claim 8.

New claim 34 has also been added to this application. New claim 34 is similar to claim 1 in many respects, but only requires the final set of parameters to include "a block size threshold that limits a number of blocks associated with one or more block sizes." As outlined above with respect to claim 1, this feature is not disclosed or suggested in any of the applied prior art.

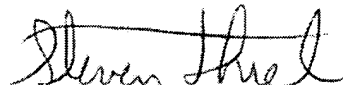
CONCLUSION

In light of the foregoing comments and claim amendments contained herein, Applicant submits that the application is in condition for allowance, for which early action is requested.

Please charge any fees or overpayments that may be due with this response to Deposit Account No. 17-0026.

Respectfully submitted,

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By: 
Steven R. Thiel, Reg. No. 53,685
858.651.7298

QUALCOMM Incorporated
Attn: Patent Department
5775 Morehouse Drive
San Diego, California 92121-1714
Telephone: (858) 651-7298
Facsimile: (858) 658-2502